EXHIBIT C

United States Patent **6,787,643**
Dillon , et al. **September 7, 2004**

Nucleotide sequence of Escherichia coli pathogenicity islands

Abstract

The present invention relates to novel genes located in two chromosomal regions within uropathogenic E. coli that are associated with virulence. These chromosomal regions are known as pathogenicity islands (PAIs). In particular, the present application discloses 142 sequenced fragments (contigs) of DNA from two pools of cosmids covering pathogenicity islands PAI IV and PAI V located on the chromosome of the uropathogenic Escherichia coli J96. Further disclosed are 351 predicted protein-coding open reading frames within the sequenced fragments.

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Appl. No.: **956004**
Filed: **September 20, 2001**

Current U.S. Class: **536/23.1**; 435/252.3; 435/320.1; 435/325
Intern'l Class: C07H 021/04; C12N 015/85; C12N 015/86; C12N 001/21; C12N 015/63
Field of Search: 536/23.1 435/252.3,325,320.1

References Cited [Referenced By]

U.S. Patent Documents

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Goverment Interests

STATEMENTS AS TO RIGHTS TO INVENTIONS MADE UNDER FEDERALLY-SPONSORED RESEARCH AND

DEVELOPMENT This invention was made with United States government support awarded by the following agencies:

NIH Grant # AI20323; AI25547.

The United States has certain rights to this invention.

Parent Case Text

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a divisional of, and claims benefit under 35 U.S.C. .sctn. 120 to U.S. patent application Ser. No. 08/976,259, filed Nov. 21, 1997, (U.S. Pat. No. 6,316,609) which in turn claims benefit under 35 U.S.C. .sctn. 119(e) to U.S. Provisional Application Nos. 60/061,953, filed on Oct. 14, 1997, and 60/031,626, filed on Nov. 22, 1996. Claimed priority documents are hereby incorporated by reference in its entirety.

Claims

What is claimed is:

1. An isolated polynucleotide comprising the ***nucleic acid*** sequence of ORF ID 4 of Contig ID 65, consisting of nucleotides 2889-1915 at SEQ ID NO:65.

2. The isolated polynucleotide of claim 1, wherein said polynucleotide further comprises a heterologous polynucleotide sequence.

3. The isolated polynucleotide of claim 2, wherein said heterologous polynucleotide sequence encodes a heterologous polypeptide.

4. A method for making a recombinant vector comprising inserting the isolated polynucleotide of claim 1, into a vector.

5. A ***nucleic acid*** sequence fully complementary to the entirety of the nucleotide sequence of claim 1.

6. A recombinant vector comprising the isolated polynucleotide of claim 1.

7. The recombinant vector of claim 6, wherein said polynucleotide is covalently linked to a heterologous regulatory sequence that controls expression of the polypeptide encoded by ORF ID 4 of Contig ID 65.

8. A recombinant host cell comprising the isolated polynucleotide of claim 1.

9. The recombinant host cell of claim 8, wherein said polynucleotide is covalently linked to heterologous regulatory sequence that controls expression of the polypeptide encoded by ORF ID 4 of Contig ID 65.

Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to novel genes located in two chromosomal regions within E. coli that are associated with virulence. These chromosomal regions are known as pathogenicity islands (PAIs).

2. Related Background Art

Escherichia coli (E. coli) is a normal inhabitant of the intestine of humans and various animals. Pathogenic E. coli strains are able to cause infections of the intestine (intestinal E. coli strains) and of other organs such as the urinary tract (uropathogenic E. coli) or the brain (extraintestinal E. coli). Intestinal pathogenic E. coli are a well established and leading cause of severe infantile diarrhea in the developing world. Additionally, cases of newborn meningitis and sepsis have been attributed to E. coli pathogens.

In contrast to non-pathogenic isolates, pathogenic E. coli produce pathogenicity factors which contribute to the ability of strains to cause infectious diseases (Muhldorfer, I. and Hacker, J., Microb. Pathogen. 16:171-181 1994). Adhesions facilitate binding of pathogenic bacteria to host tissues. Pathogenic E. coli